UC Cooperative Extension
University of California
Agriculture & Natural Resources

Rice Leaf – April 2026

Butte & Glenn Counties

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Upcoming Events

Rice Quality Workshop

- July 30, 2026 from 8:30 am – 12:30 pm
- An in-depth workshop covering the factors affecting rice quality.
- Hillcrest Catering, 210 Julie Dr, Yuba City, CA

Emerging Pest Workshop

- August 5, 2026
- Time and location to be determined

Rice Winter Grower Meetings

- Woodland: February 16, 2027
- Richvale & Glenn: February 17, 2027
- Colusa & Yolo: February 18, 2027

Looking for collaborators for field trials!

The UCCE Rice Team is conducting another year of field trials to help find alternatives to the Double Propanil application.

We are looking for collaborators with rice fields that have heavy grass pressure that is not well controlled by granular applications. Fields can contain any type of grass (watergrass, mimic, barnyardgrass, or coast cockspur) or several species. Growers can put down whatever granular programs they choose up front and just have to skip the trial area for any foliar applications. Growers and PCAs will receive a report for each field where we place a trial.

For more information, and if you are interested in having a trial in your field(s), please contact Whitney Brim-DeForest (wbrimdeforest@ucanr.edu) or call 530-822-7515.

Where can you reduce fertilizer input costs?

Bruce Linquist, UCCE Rice Specialist - Agronomy

This post is somewhat a repeat of last year's. However, while last year the rice price was low, this year we have both low rice prices and high fertilizer costs. Therefore, there is even more reason to carefully manage your fertilizer input costs. Below are some suggestions on how you can reduce your costs.

First, do not plan a top-dress nitrogen (N) application. If you routinely plan a top-dress N application, put that amount of N into your aqua application instead. We have done a lot of research on this and have seen no benefit of splitting the total N rate between a preplant aqua and top-dress N applications. If the field remains flooded early in the season, this aqua-N is efficiently used. This saves cost for two reasons. First, aqua-N is a cheaper N source than ammonium sulfate (typical top-dress N source). Second, you avoid airplane costs associated with topdressing. These savings could amount to $25+/acre. I am often asked about the benefits of the sulfur (S) found in ammonium sulfate. I have never seen S deficient rice in CA; and in the testing that I have done, the soil and plant S concentrations have always been above critical levels.

Was your field fallow last year? For the past four years we have been doing research at the Rice Experiment Station on how to manage N fertilizer in rice fields where the previous year the field was fallowed. I have written about our findings more extensively in previous articles. The bottom line is that there is more soil N available from fields which were fallowed the previous year. Thus, if you have a field coming out of fallow (and it had been in rice prior to that for several years) you can reduce N fertility rates. Our research shows that rates can be reduced by 20-40 lb N/ac.

Importantly, for both the strategies mentioned above, it is important to keep a close eye on the crop around panicle initiation (40-45 days after planting) to see if it is displaying any signs of N deficiency. This can be done with a Leaf Color Chart, a Green Seeker, or plant analysis – all of which have been discussed in previous newsletters. If the crop is showing signs of deficiency at this time, apply the top-dress of N.

Maybe you should back off on your N rate. The N rate required for maximum yields does not vary based on rice price and N cost. However, as the price of rice drops and the cost of N fertilizer increases, the economical optimum N rate gets lower. Therefore, in years such as this with low rice prices and high fertilizer N costs, the economical optimum N rate will be lower. Therefore, in estimating your N rate, you will want to err on the side of underapplying. Overapplications will be costly and will further increase the cost as there is higher risk of lodging. This is especially the case with M-105, and to a lesser degree, M-206 and M-210. The varieties M-209 and M-211 are less prone to lodging.

Finally, test your soil. You may not need to apply phosphorus (P) and potassium (K) fertilizer. I recommend applying a balanced fertility program that balances the P and K removed from the field in harvested grain (and maybe straw) with what is applied as fertilizer. This is especially the case when soil tests are not used as it ensures an adequate supply of these nutrients. However, a decision to fertilizer with P and K can be based on a soil test. If your soil P levels are above 12 ppm (Olsen P/soil bicarbonate test), consider not applying P as these soil P levels are adequate. Similarly, if your soil K levels are above 120 ppm, you may not need to apply K fertilizer. However, in areas on the east side of valley, especially the red soils, the critical soil K level may be higher.

Effects of azoxystrobin when disease pressure is low

Luis Espino, Rice Farming Systems Advisor, UCCE Butte & Glenn

Azoxsytrobin (Quadris, Tetraban) is the most used fungicide on rice in California. Azoxystrobin has been in use since the late 1990s. This fungicide was registered after rice blast was discovered in California in 1996. More recently, several years of trials showed that when azoxystrobin is used at the late boot to early heading stage, severity of the tiller diseases stem rot and aggregate sheath spot can be reduced. Currently, azoxystrobin is used in over 300,000 acres of rice annually.

A common question I get is about the potential of azoxystrobin to increase yield or grain quality even when disease is absent. I conducted trials in 2023 and 2024 to answer this question. Each year, trials were set up at two locations with very low

levels of tiller diseases, no blast, and no smut. Each trial consisted of an untreated control and two rates of Quadris (12.5 and 15 oz/a). In 2023, there was no increase in yield or quality at any of the locations. In 2024, at one of the locations (Yolo County), there was a tendency to have higher grain yield (6 cwt higher) when rice was treated with 12.5 oz of Quadris. Milling yield or head rice yield was not affected. At the second location (Glenn County) grain yield was not affected but milling yield was higher (1 point higher) when Quadris was applied at 12.5 oz/a. Head rice yield was not affected.

Putting these results together, we can say that in one trial out of four we detected an increase in grain yield and in one trial out of four we saw an increase in milling yield. I never detected an increase in head rice yield. The increase in grain yield and milling yield may be due to the "greening" effect of Quadris. This effect has been well documented in other crops and rice growers know it well. Fields treated with Quadris stay greener for longer; this may result in a slightly longer grain filling period that may cause higher yield. However, this does not seem to occur every year or at every location. Most likely, these results are weather dependent. Since we don't know what type of grain filling weather we are going to have at the time the fungicide is applied, it is difficult to make a recommendation. At most, we can say that under very low disease pressure, you may see benefits from an azoxystrobin application 25% of the time. Given the price of rice, 2026 might not be the year to try your luck. Remember, this is under no disease pressure. If disease is present, then it is a different story.

Ongoing diesel exhaust fluid (DEF) action

Sarah Marsh Janish, Rice Farming Systems Advisor, UCCE Colusa & Yolo

Background

Since 2010, most on-road and many off-road vehicles and equipment have used selective catalytic reduction (SCR) systems to inject diesel exhaust fluid (DEF) into exhaust streams with the intended goal of nitrous oxide (NO_x) emission reduction. In cases where DEF levels ran low or unexpected mechanical failures, these SCR systems triggered automatic inducements, which caused vehicles to reduce speed or become inoperable, causing operational delays and economic hardship for operators. This deratement strategy was intended to ensure compliance with the Environmental Protection Agency (EPA)'s Tier 4 Emissions Standards.

In August of 2025, EPA issued guidance calling on engine and equipment manufacturers to revise DEF system software in existing vehicles and equipment to reverse deratements. A clarification was issued that for agricultural equipment, the allowable inducement period may be up to 100 hours, allowing operators significantly more time to diagnose and resolve issues; previously, the inducement period was 4

hours before the equipment became idle (Table 1). Additionally, requirements were set in place for model year 2027 for manufacturers to engineer all new diesel on-road trucks to avoid sudden power loss after DEF depletion.

Table 1. Nonroad engine deratement schedules under the modified inducement period. Nonroad constant speed engines (e.g., ag pumps) and gensets do not have an initial inducement step as any torque may limit product functionality. Nonroad equipment can be restarted with full power 3 times for up to 30 minutes after inducement.

Inducement category	Timing	Level
Previous	4 hours	Idle only
Initial	36 hours	25% torque reduction
Secondary	n/a	n/a
Final	100 hours	50% torque reduction

What's happening?

On March 27, 2026, EPA issued additional guidance to manufacturers to allow them to remove traditional emission sensors (known as Urea Quality Sensors) and replace them with NO_x sensors, with the goal of stopping inaccurate DEF system failures. This falls in line with EPA's February 2026 Right to Repair guidance, allowing NO_x sensor software installation without being treated as illegal tampering under the Clean Air Act. This means that the Department of Justice will no longer pursue *criminal* charges for tampering with emissions systems.

The EPA cited the need to reduce the frequency of "nuisance shutdowns" caused by faulty sensors rather than actual emissions violations. By shifting the focus to real-time NOx output, the agency aims to maintain environmental standards while increasing equipment uptime. The EPA emphasized that this action does not replace the Clean Air Act rulemakings, but rather is focused on the on-board diagnostic (OBD) hardware and software used to verify the limits. Vehicles must still meet the pollutant thresholds established in prior Clean Air Act rulemakings.

According to data released alongside the guidance, the Small Business Administration (SBA) estimates an annual reduction in operational costs of approximately $6.7 billion for light-duty truck operators, $2.7 billion for heavy-duty truck operators, and $4.39 for agricultural vehicle operators.

While this is that status of current actions, the EPA has indicated that formal rulemakings will be pursued in late 2026 to codify changes and provide a standard deratement schedule for all new diesel engines manufactured in the U.S.

What this means for California

There is confirmed regulatory divergence between the federal EPA and California (Table 2). On March 26, 2026, the California Air Resources Board (CARB) permanently adopted the Emergency Vehicle Emissions Regulations; in short, that California will continue to enforce its own, stricter emissions standards (including hardware requirements) regardless of federal deregulation. This means that a diesel engine that is federally compliant with a NO_x sensor may still face registration or enforcement issues in California under the Clean Truck Check (HD I/M) program if it does not meet the CARB specific requirements. Civil penalties remain high (up to $45,000 per violation).

Table 2. Comparison of Federal EPA and CARB DEF regulatory standards for March 2026.

Feature	Federal EPA	California (CARB)
Urea sensors	Optional (can use NO_x instead)	Required for CA certification
Repair Window	Up to 100 hours for non-road	Much shorter (e.g., 4 hours)
DIY Software	Legal; not tampering	Risk of state-level tampering fines
Registration	Federal standard	Must meet CARB-specific standards

The reality is, there is a lot of misinformation being spread right now. California operators should stick to CARB-certified parts, software, and updates in order to avoid heavy fines or registration blocks.

Best practices for early-season weed control in California rice

Whitney Brim-Deforest, Rice Advisor, UCCE Sutter-Yuba, Placer, & Sacramento

Reprint from Rice Farming, March 2026

Early season weed control is vital to keeping yield potential high in California rice. Most of our yield potential is lost to weed competition in the first 30 days. The vast majority of that yield loss is due to watergrass species (*Echinochloa* spp.) including barnyardgrass, late watergrass, early watergrass and coast cockspur (Walter's

barnyardgrass). Other weed species are also important, but the impact on yield loss is not as high.

Control of the grass species is becoming increasingly difficult in our system, due to widespread resistance. The new species, coast cockspur, seems to have high tolerance to many of our registered products as well (although a full profile of this weed has not yet been conducted). The key to grass control is to use combinations of products upfront, early in the season, to reduce growth and therefore, competition with young rice plants. The best combinations are sequential applications or tank-mixes and same-day applications (if label allows) of herbicides with different modes of action.

A good option for early weed control is Abolish (thiobencarb) applied as a pre-emergent pre-flood, followed by a granular product soon after planting. Some good granular options for grass control include Cerano (clomazone), Zembu (pyraclonil), Bolero (thiobencarb), and Granite GR (penoxsulam). Butte (benzobicyclon + halosulfuron) or Cliffhanger (benzobicyclon) are other products that provide suppression and are good in combination with other chemistries. Cerano (clomazone) has the least widespread resistance of the granular options, and while Zembu (pyraclonil) is too new to understand the complete resistance profile (if any), preliminary data suggests that it controls most grass biotypes when applied at the correct timing. It is a new mode of action for grass control in California (a PPO-inhibitor), so if resistance to other products is suspected in a field, it is a good candidate herbicide for rotation.

Again, combinations are the best idea for controlling grasses early. Some combinations that work well are Cerano (clomazone) applied day of seeding, followed by Butte (benzobicyclon + halosulfuron) or Cliffhanger (benzobicyclon) soon after. Some phytotoxicity has been observed; however, the rice recovers. Zembu (pyraclonil) followed by Cerano (clomazone) is another good combination, as long as the two products are appropriately spaced (see label for timings). Applications of these two products close together can cause phytotoxicity.

A good practice can also be to do a pinpoint application around the 3-4 leaf stage of rice after a granular application. Although it may be difficult to do this with certain granular products with long water-holding periods, it may be possible to do with some of the products with shorter water-holding periods. These include products like Abolish (thiobencarb) applied pre-flood, or Cerano (clomazone) applied day of seeding. Butte (benzobicyclon + halosulfuron) also has a shorter water- holding period, as does Cliffhanger (benzobicyclon), which has no water hold.

If conducting a pinpoint drain, make sure to expose at least 70% of the weed foliage, and reflood as soon as possible after application (24-48 hrs if possible). Good herbicides to apply at this timing for grass control include propanil, Clincher

(cyhalofop), Regiment (bisbyribac-sodium), and Loyant (fluorpyrauxifen-benzyl). Again, these should be applied in tank mixes for best control.

For good early season weed control that has the greatest impacts on yields, focus on grass control, with many modes of actions applied in a short window, maximizing control while decreasing selection for resistant biotypes.

Cultivating resilience: mental health resources for the ag community

Sarah Marsh Janish, Rice Farming Systems Advisor, UCCE Colusa & Yolo

The demands of agriculture are unique, often blending long hours, unpredictable weather, and financial pressure. Taking care of your mental well-being is just as vital as tending to your crops. Whether you are looking for proactive stress management or need immediate support, there are resources specifically designed for the agricultural community.

Navigating the Economic Squeeze

Current market conditions are creating a "perfect storm" for many operations. Persistently low commodity prices for staples like corn and soybeans, combined with stubbornly high input costs - particularly for nitrogen fertilizer and fuel - have led to a severe squeeze on profit margins. Rice farmers are not immune to this pressure: with urea prices up 94% from this time last year, rising fuel/diesel costs, and unknown impacts to the rice chemical market, the start of the 2026 season is daunting, to say the least.

According to recent USDA Farm Sector Income Forecasts, net farm income is projected to continue its decline from previous record highs. This financial strain has led to a 46% increase in farm bankruptcies in 2025, with many producers forced to take out larger operating loans just to cover basic costs. It is important to recognize that these external economic factors are a significant driver of stress and are often beyond an individual's control.

Tools for Your Toolkit

Ag-focused practical guides and educational resources can help you navigate the daily pressures of farm life:

Stress Management Guides: Access specialized resources like the Managing Farm Stress PDF from Iowa State Extension or Virginia Cooperative Extension's guide on Beating Stress.

Family & Wellbeing: Learn Strategies to Cope with Family Stress through Michigan State University or explore NCAT's guide on Farm Stress and Emotional Well-Being.

Mindfulness: Utah State Extension offers a session on Practicing Mindfulness During Difficult Times to help keep you grounded.

Comprehensive Hubs: For a variety of tools, visit the Farmer Toolkit or the Western Regional Agricultural Stress Assistance Partnership (WRASAP).

Immediate Support & Helplines

If you or someone you know is struggling, you don't have to carry the load alone. Help is available 24/7 through several dedicated lines. If you are interested in a printable card containing these numbers, please contact the UCCE Colusa office or smarsh@ucanr.edu.

Farm Aid Hotline: Call **1-800-FARM-AID (1-800-327-6243).** Staff are available Monday – Friday, 6 am – 6 pm PT (Spanish assistance available 6 am – 2 pm PT). La línea directa en español está disponible de lunes a viernes de 9 am – 5 pm hora del este a 1-800-FARM-AID. If you want to connect with a hotline staff outside of hotline hours, please fill out a form here or on the Farmer Resource Network website.

Farm State of Mind: For those in crisis, call or text **988** or visit the 988 Lifeline.

Crisis Text Line: Text **"HOME"** to **741741** for immediate support via text.

CalHOPE Warm Line: For peer support and non-emergency help, call **1-833-317-HOPE (1-833-317-4673).**

SAMHSA National Helpline: For treatment referrals, call **1-800-662-HELP (4357).**

The Trevor Project (LGBTQIA+ Youth): Call **1-866-488-7386** or chat via their website.

Trans Lifeline: Call **1-877-565-8860.**

LGBT National Help Center: Call **1-888-843-4564.**

Remember: Reaching out is a sign of strength, not weakness. Keep these numbers in your phone or posted in your shop - you never know when you or a neighbor might need them.